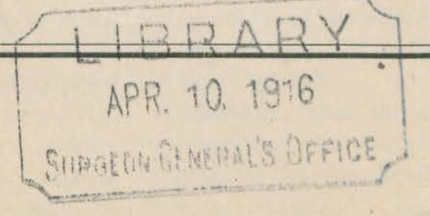
FAILURE OF VACCINATION.

VARIOLOUS INFECTION AN ILLUSION; VACCINATION AN INJURY TO HEALTH AND A DANGER TO LIFE, AND AS A PROTECTION AGAINST SMALL-POX, A VANITY.

BY CARL SPINZIG, M. D.

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BY CARL SPINZIG, M. D.

PROGNOSTICATION:—"Small-pox is eradicated!"—*Aug. Friedr. Hecker, 1803(?).*
EXPERIENCE:—"Ars medendi non nisi tardo pede progreditur."—*Heinrich Rohlfs, 1879.*

Within the compass of this but chanced essay it might have appeared sufficient only to prove by statistics the truth of the propositions enunciated in the heading, but as statistical data generally, and those of vaccination in particular, admit of any desired flexibility, either to sustain arguments in its favor or totally to condemn it, it is essential primarily to obtain a correct understanding of the nature of small-pox, of the patho-chemical processes, and of the physical laws that determine its occurrence.

The phrase, the "variolous poison is a specific entity, *sui generis*," has, at the present state of physiological science, no other significance than being a *contradictio in adjecto*, having no other means of support as an established truth, except an indiscriminating credulity, or interested motives identified with the spoils of vaccination.

In harmony with the doctrine of specific infection, nothing is required to be known of the nature of variola.

The mysterious "poison of infection" is beyond the limits of physical analysis, and its action on the human organism is hence regarded also beyond explanation. It is, therefore, essential, in this "enlightened mystery," to employ another mystery, viz: vaccination, as the intellectual antidote, (analogous to the principles of homœopathy—*similia similibus*, etc.) which, by means of dilution, is claimed to be possessed of the requisite ability to afford protection. With gossip of this kind the multitude is then lulled into dormancy, but alas, of a deceiving surity! Vaccination appears equaled by the "thirty-second dilution" of Hahnemann's wisdom, for, its claimed preventive power over the "small-pox poison" in its properly diluted state when applied to a perfectly healthy person, compares, in proportion, to an inflammation excited by the prick of a pin in the cutis intended to prevent *e. g.* pneumonia.

The "scientific proof" of the infectious nature of variola, controlable by vaccination, is then submitted in form of tabulated evidence, and intended to exhibit the "advantages" (here already *advantage* in lieu of *protection*) manifested by those who had taken small-pox and were previously vaccinated, over those who also had taken small-pox and never had been vaccinated. Pursuant to some reports (Philadelphia, Berlin, etc.), the vaccinated cases exhibit a rate of mortality only of one against three of those unvaccinated, and that in proportion to the number of plain and full vaccination marks the severity of small-pox slides from the maximum to the minimum. But such statistics are liable to have recorded incidentalities, and are open to numerous other and grave objections, yet the convenience thereby afforded spares the trying efforts of the scientific investigation of physiologico or patho-chemical and physical research.

Ultimately, after the originally claimed "protection," the controlling influence of vaccination over small-pox is, even statistically, not sustained. Refuge is then taken in another assertion, that vaccination (re-vaccination and frequent repetitions or subsequent vaccination) exercises a *mitigating* influence over the intensity of small-pox, and thus, it is asserted, small-pox epidemics, at the present (*i. e.*, in the latter decades) have been but light and of less

frequent occurrence.* In substance, this dernier pretext is literally crushed by the weight of the evidence from the destructive epidemics that devastated Europe and America in 1870, 1871–'72. Moreover, the arguments in its favor are partly invalidated by the facts that the social state and the hygienic conditions of those suffering from small-pox are of marked difference, and prove in favor of those vaccinated (demonstrated by the records of Philadelphia, Berlin and Vienna), for the suffering proletary contributed most extensively to the rate of mortality, and among whom vaccination, as a rule, is usually neglected.

In correct inquiry, in medical science, the nature of the object, here small-pox, must be understood before remedial measures can be recommended with propriety; the study, therefore, of the nature of small-pox, and, *eo ipso*, of "infection," must be first in order.

In consequence of the facts derived from the morbid anatomy in variola, especially when the period of development of the morbid structural changes is compared with the space of time allotted to it by the doctrine of specific infection, the "infectious" origin and "specific" nature of small-pox must unceremoniously be rejected. The lesions, revealed by the autopsy, can not assume the degree of morbid alterations presented during the period of "incubation" and duration of the disease to date of death, a period of about two to three weeks,* the grave forms, lardaceous degeneration and disintegration of the glandular tissue, require, by far, a longer period. Thus the true nature of the small-pox process can only be comprehended after imaginary morbid causes are excluded from consideration, and the elements engaged therein are recognized as physiological component parts of the human organism, changed by the surrounding physical influences into pathological compounds.

* Compare author's pamphlet on Variola, etc., 1878, p. 38.

To indicate, in chronological succession, the stages of these processes and the space of time elapsing for the completion of each, would, in this place, be only a repetition of what has been submitted *in extenso* in our pamphlet on Variola, of 1878. Here it may suffice once more to state the fact, since corroborated, that *the eruptive character of small-pox is the outward manifestation of a process of decomposition of the blood, produced by the disproportionate quantity* (from an excess of .05 to .08 per cent.) *of urea.*

By reliable chemical analysis in physiological research, extending over a period of more than two decades, the fact is now fairly established, as is stated by most eminent authority,* that *normal human blood does not contain more than* .01 *to* .02 *per cent of urea, but variolous blood* .08 *per cent. and over.*† The accumulation of urea in the blood is owing to structural changes of the glands of secretion (kidneys, etc.), which thus fail properly to functionate, and from decomposed nitrogenized and albuminous matter throughout the human organism.‡ Its immediate augmentation is due, in a great measure, to the proneness to decomposition, which is effected by even a slight increase of individual caloric, thereby evolving gases (carbonic acid, carburetted hydrogen and ammonia), some of which are highly expansible and unduly increase the pressure of the blood, particularly in the

*Gorup-Besanez. Physiologische Chemie.

†Coze et Feltz, Maladies infectieuses.

‡ A healthy man voids about half an ounce of urea in twenty four hours.—Golding Bird, Urinary Deposits, p. 77.

Urea is also derived from the decomposition of uric acid, which already takes place at 68° Fahr. Here is the equation:

	C.	N.	H.	O.
Uric Acid :—	10	4	8	16

cleaving into two atoms of urea; and six of CO_2, viz:

C.	N.	H.	O.
4	4	8	4
6	—	—	12
C.	N.	H.	O.
10	4	8	16

Compare Preyer, Pflueger's Archiv, 1868, p. 424, and Golding Bird, l. c. p. 87.

capillary circulation. Thus the functions of the kidneys are greatly interrupted and a high degree of a uræmic (azoturic) poisoning of the blood will be the result. It is obvious, and, in this connection, perhaps, proper to observe that, in the winter season, merely limited meteorological fluctuations are sufficient to promote such processes in the human organism, and which, in their outward reaction, produce exanthematous manifestations. Moreover, by the degree of intensity of the meteorological variations and by the potency of uræmic reaction, the species of the eruption is determined, as this regressive action is analogous to that produced by fibrinous fermenting matter (fibrinfermente—Koehler) which from the energetic absorption of oxygen lead, in the reaction of small-pox, to the formation of vesicles upon those surfaces to which atmospheric air has uninterrupted access.

Small-pox, like scarlatina and rubeola, according to their etiology, appertain to that class of diseases which prevail in the wintry season, when, from the intensity of the variations of meteorological influences, an epidemic prevalence results.*

These facts, relating to the natural history of variola, grow in importance when we remember that urea is found in the human system in a higher per centage in the winter than in summer, and that it is more predominant in the male than in the female; in the child more than in the adult, but in the aged less than in either.* Moreover, we should remember the clinical fact that males are more numerously affected by small-pox than females, children more than adults, and the aged the least of all.† Further, that in geographical distribution the same law is found in operation, viz: in hot regions, small-pox prevails chiefly in high elevations (from six to ten thousand feet) and in the plains it nearly disappears. These facts of observation are chiefly noticed in Mexico, Central America, South America and Africa (Egypt).‡ It is, hence, fully evident, from the general facts and statistical data adduced, that the law is established, and as these facts precisely

* Most convincing evidence, in behalf of these propositions, occurred h re in St. Louis, some few weeks since. Within one week, three daughters in one family died of scarlatina that could not be traced to infection; the residence of the family is located healthfully and conforms with ordinary sanitary regulations. The first daughter, aged five years and three months, died Nov. 27th; the second, aged seventeen years and two months, died on the 28th of November; the third, aged two years and eleven months, died Dec. 1, 1880.

Now it may be borne in mind that the wintry weather here set in on the 6th of November and continued, with only quotidian interruptions until the 12th of December, and from then until now. The above mortality coincided with the period of the greatest meteorological fluctuation, viz: when the barometrical ranges were equaling those extending over a period of an entire year. And in conformity with the barometrical fluctuation, the temperature fluctuated as a matter of consequence. The meteorological records are as follows:

Barometer.	*Degree.*	*Time.*
Maximum	30 786	Nov. 22, 7 A. M.
Minimum	29 329	Dec. 4, 11 P. M.

Range, in thirteen days, 1.457 inches.

Thermometer.	*Degree.*	*Time.*
Minimum	10 F.	Nov. 22, 7 A. M.
Maximum	60 F.	Dec. 4 11 P. M.

Fluctuation, in thirteen days, 50 deg. F.

* Compare Gorup-Besanez. l. c., pp. 587 and 590.

† To corroborate this clinical fact, the following tabular statements of mortality, which is a fair index of the percentage of morbidity, of sex and age, may here be reproduced:

SEX:— Males, 56 83 per cent. Females, 43.17 "

Years.	*Per cent.*	*Years.*	*Per cent.*
0–10	47.27	50–60	2.36
10–20	15.01	60–70	1 32
20–30	19 15	70–80	0.31
30–40	8 98	80–90	0.04
40–50	5.20		

Of 175 children under ten years of age, 97 were males and 78 females. Of 588 deaths from small-pox, the age is represented in the following table:

Years.	*Number.*	*Years.*	*Number.*
0– 1	157	35–40	21
1– 5	226	40–45	5
5–10	65	45–50	5
10–15	14	50–55	3
15–20	20	55 60	5
20–25	28	60–65	4
25–30	20	65–90	0
30–35	15		

The first two tables are copied from the Annual Report of the Board of Health, Philadelphia for the year 1872, and the third one from the *Jahresbericht des Wiener Stadt Fysikates*, for 1879.

‡ Compare Lombard, Climatologie medicale, Vol. III, pp. 357 to 389 and 560; also Muehry, Klimatologische Untersuchungen, p. 277. In Morocco, where nothing but filth is met with, and a total absence of medical knowledge, small-pox is not destructive, owing to the mild climate (G. Rohlfs, Arch. Vol. I, p. 190).

correspond in elucidating a fundamental truth, that *the nature of small-pox is found in the reaction of urea on the blood, and that small-pox will occur and prevail when and where the reaction of urea is intensified by the nature of physical surroundings.*

From the physical nature of urea we know that it is readily dissolved by the warm animal fluids (warm water dissolves it in any proportion), and thus, from its proneness to decomposition, it acts on the blood corpuscles as a deoxidizing (reducing) agent.*

Oxygen is then at first attracted in the formation ef septic matter, as a matter of consequence, and which again energetically absorbs additional oxygen from the atmosphere, analogous to "fibrinous ferments," and thereby the capillary vessels of those surfaces to which atmospheric oxygen is most readily accessible, are infiltrated with septic matter, and there terminate, by way of diapedesis, into the formation of the contents of the subsequent small-pox vesicles, which, in their phases, constitute septic abscesses on a small scale.

In the study of the etiology of variola, and if the theory of infection is admitted, the belief appears to be entertained that the morbid alterations of the blood corpuscles, as the peculiarities are found on microscopic examination, are a direct demonstration of the presence and form of the "specific poison of infection." But, in the limited compass of that mode of inquiry, the actual state of the facts is not realized. Those visible changes can be produced artificially by exposing healthy blood to the reaction of a solution of urea. This subject is of uncommon interest, and it may, hence, not appear improper to allude to it here in detail.

The lithographic representations of corpuscles of variolous blood submitted by Coze et Feltz (Op. Cit., plate iv, fig. vii), are intended to exhibit the "small-pox poison," and which is supposed to be *bacterii* and *bacteridii* that have entered the system from without, as by injecting blood from variolous patients, either in the liquid or dried state, the same kind of bodies are subsequently visible on microscopic examination. Many of the rabbits thus experimented on died soon afterward.

But similar, if not identical, effects are produced by mixing blood from healthy rabbits with a solution of chemically pure urea, and keeping the mixture in a warm room (65° to 70° F.) for eight or twelve hours. A great many of the blood corpuscles have then become granular, and have serrated or thorny edges. The liquor sanguinis contains large numbers of "dancing" granules of urea which resemble most perfectly *micrococci* and *shreddy bacterii.* The spectroscopic analysis of variolous blood, executed by Coze et Feltz, prove also nearly identical with those of Prof. Preyer (compare Pflueger's Archiv, Vol. I), with uric acid on hæmoglobin. In both examinations the hæmoglobin impressions had vanished.

With the view that small-pox never originated except by conveyance or "infection," and that the supposed "infecting" agent is a form representation of the lowest degree of organic development (similar to the also supposed "malarial poison"), it is intimated that atmospheric ozone, when acting in the normal mean, or even in an excess, would be the natural antidote also to variola, as the fact is well established that intermittent and remittent fevers disappear when ozone is predominant. But, as we know, variola can not be classified with fevers that originate and prevail in the summer and autumnal season when urea in the blood is reduced to the minimum, and glycogenic matter predominates. The pathogeny of those fevers is influenced by ozone, as by this agent it is reconverted into chemico-physiological processes that are curative of the fevers. In variola,

† Urea reacts intensely on the blood corpuscles. —Rollet, *vide* Stricker, Lehre von den Geweben, page 290.

urea is in excess and glycogonic matter is almost entirely missing; ozone, therefore, does not influence the pathogenv of variola, and variola is, hence, found to prevail when ozone exists in the air even in marked excess. A direct proof is afforded by the records of Vienna, of the year 1877, when that place was subject to a rather light epidemic of variola, and the monthly means of atmospheric ozone were in excess, as recorded in the following table (Annual Report d. Stadtfysikates for 1877):

Month.	*Per cent.*	*Month.*	*Per cent.*
Jan	4.6	July	8.2
Febr	7.2	Aug	7.6
March	7.5	Sept	7.9
April	8.8	Oct	7.4
May	8.4	Nov	6.1
June	7.8	Dec	6.7
Annual mean	7.35		

To learn the approximate normal monthly and yearly means of ozone at Vienna, the rates for 1854 and 1855 are here reproduced:

Month.	*Per cent.*	*Month.*	*Per cent.*
Jan	5.23	July	5.23
Feb	7.90	Aug	3.60
March	5.71	Sept	2.70
April	4.25	Oct	5.01
May	4.30	Nov	2.90
June	3.75	Dec	3.90
Annual mean	4.06		

But of the meteorological fluctuations which are essential to the origin and prevalence of variola, the following variations are recorded at Vienna for the year 1877:

BAROMETER.

Month.	Variation.	Month.	Variation.
Jan	—0.5	July	—0.5
Feb	—4.1	Aug	—0.9
March	—5.5	Sept	—0.7
April	—5.1	Oct	+1.1
May	—2.3	Nov	—1.7
June	+2.1	Dec	+0.2
Annual mean	—1.5		

THERMOMETER.

Month.	Variation.	Month.	Variation.
Jan	+ 1.3	July	+19.2
Feb	+ 2.7	Aug	+21.0
March	+ 3.7	Sept	+12.7
April	+ 8.1	Oct	+ 8.0
May	+11.9	Nov	— 4.8
June	+19.7	Dec	+ 0.1
Annual mean	— 9.4		

RELATIVE HUMIDITY.

Month.	Variation.	Month.	Variation.
Jan	+4.5	July	+ 2.7
Feb	—3.1	Aug	+ 7.4
March	—0.5	Sept	+16.6
April	+6.1	Oct	— 0.2
May	+5.2	Nov	+ 4.3
June	—2.4	Dec	+ 4.4
Annual mean	+ 4.6		
Annual mean rain-fall, var.	—19.0 m. m.		

It will be seen that these variations are extreme. In their fluctuations and intensity of reaction, during the season in which they were irregular, is to be found the cause of the morbid phenomenon here under consideration.

In order to compare the law of causation with the results of morbidity and mortality of variola, the following two tables are of great interest. They illustrate the verified fact that variola, in its occurrence and fatal effects, is on a parallel with the meteorological seasonal influences, and that its predominance is in a ratio with the intensity of reaction of their irregularities.

Morbidity of variola at Vienna in the year 1877:

Month.	No. cases.	Month.	No. cases.
Jan	233	July	78
Feb	191	Aug	60
March	287	Sept	46
April	198	Oct	91
May	158	Nov	129
June	94	Dec	184
Total for the year	1,749		

Mortality of variola at Vienna in the year 1877:

Month.	Male.	Female.	Total.
January	47	38	85
February	36	33	69
March	44	41	85
April	38	37	75
May	23	25	48
June	23	18	41
July	14	21	35
August	13	10	23
September	9	8	17
October	11	16	27
November	23	21	44
December	20	19	39
Totals	301	287	588

The meteorological variations at Vienna

for 1877 compare fairly with those of Philadelphia at the time of the great epidemic of 1871–'72. At both places, low borometrical pressure, high rates of temperature, also high rates of relative humidity and deficiency of rain-fall, are noted. But it may not be necessary here to represent the manner in which these influences react on the human organism. This has been, to some extent, already indicated, and is elucidated by the study of biology and climatology. Here it is only requisite to direct attention to their preëxistence and co-existence with the occurrence and prevalence of small-pox.

The existence of the supposed *agent* of infection, the "infectious X" is, under the focus of scientific inquiry, consequently, nowhere to be discovered, and the *agency** active in the causation of epidemics, can not be admitted to be the asserted "importation" and "transmissibility from person to person or by things," but can only be recognized according to the evidence that we have produced, viz: that the nature of surrounding physical influences determines the line of demarcation of healthful or morbid action, and by the potency of their shadings, in the respective season and at the respective station, specialize the type of the prevailing epidemic.

In the presence of these facts, the question suggests itself: what is to be understood by the nature of the supposed "poison of infection?" Although various efforts have been made, at different periods, to demonstrate the nature and character of the "infectious agent," yet so far as the results of inquiry are brought to general knowledge, nothing of a definite character or "specific nature" can be demonstrated. Organic forms of the lower and lowest type of organization, whose nature is identified with that of retrogressive metamorphosis, were regarded as the true cause or the agents of several, at least, of the epidemic diseases, and their subtile modes of diffusion have, by infectionists, been designated the source of the propagation. But from the "cylindrotænium" to the "globulated bacterii," "shreddy bacterii" and "bacteridii," the entire series is now known as mere *products* of the process of decomposition, forming the patho-chemical basis of one or the other epidemic disease.

The fermentative process supposed to be produced by virtue of one or another fungoid growth, which, in consequence of its special characteristics, determines the respective form of any of the "zymotic diseases," is now demonstrated to be simply a process of oxidation, as "zymogen," a non-fermenting substance of the pancreatic secretions, is converted into "trypsine," a highly fermentable substance, by the increase of its equivalent proportion of oxygen; and that "trypsine" is as readily reducible to "zymogen" by diminishing the quantity of its oxygen to the original chemical standard (Compare L. Hermann, Handbuch der Physiologie, Vol. V, p. 189). Whatever form representative of retrogressive growths is observed in fermentation can, hence, not be recognized as the *cause*, but only as a *product* of this process, of which oxygen is the agent and these growths, as material, only form a part of the agency for inducing an augmentation of fermentation. This fact is well founded in mycology by direct observation (Karsten, Hallier), and was abundantly corroborated by the late Dr. Theodore Hilgard, of this city, viz: the access of atmospheric air and the composition of the substrata or nutrient matter upon which the fungus is cultivated, determine its form representation (Eidam, Mycologie, p. 187).

Owing to these cardinal points in natural history, the hypothesis of the "specific nature of the "germs of infection" as the cause of diseases occurring epidemically, naturally proved contradictory in the explanation of the origin and diffusion of those diseases, and the proof supposed to

* These terms are here employed upon a classical definition of Dr. J. E. Tefft, Springfield; Mo., kindly suggested in a private letter.

be at hand in sustaining "infection" as to origin and portability, or the mode of diffusion, was exploded as a fact of experience after every epidemic. But efforts are not yet spared to revive the theory of specific infection. It is suggested by the "germ doctrine," although it is the ultimate rescue, that what are termed "the Pasteur discoveries" are direct evidence in its behalf.

Although the statements of Prof. Pasteur, made before the Academy of Science, at Paris, during the year 1880, have, in this city, been accessible only in fragments, yet the evidence is fully obtained that the existence of a *contagium vivum* is admitted, by which the endeavor is made to explain the origin and propagation of epidemic diseases (small-pox as one of them). For cholera the *microbion* is claimed to be the "cholera organism;" for anthrax *micrococcus*, *sporules*, *bacterii*, etc., etc., (according to Samuel, *bacillus anthracis*) to be the infecting poison; for small-pox, as of old, the unknown "X," and therefore it is, by Prof. Pasteur, confidently believed that variola and vaccine virus will prove to be identical (of which, however, there has of late been no more dispute). It is thus further intimated, that in the attenuation of the virus, vaccinating, small-pox and cholera(?), will be found the prophylactic power against the true disease, in conformity with the doctrine, in the case of small-pox that an individual can be infected but once.

If science lacks better information, clinical history alone could produce facts proving the contrary. That "attenuation" (*i. e.*, "vaccination" or "inoculation"), is followed by a signal failure, may be learned from the fact that, in Paris, as early as 1756, inoculation was practiced, and that a small-pox epidemic devastated that city in 1763. Those inoculated contracted the disease as well as those who have been vaccinated at the present day, and that Louis XV suffered from small-pox when fourteen years of age and died of the same disease in 1774, at the age of sixty-four years. Inoculation (attenuation) was then abandoned (Compare the *Vaccination Inquirer*, Nov. 1879, p. 105).

However, all of these assertion can not be claimed as "Pasteur's discoveries," nearly the entire series have formed the basis of the nosology of infection for several decades, and the doctrine upon which vaccination is based, has been in vogue, following similar ideas, for more than a century.

Neither is the supposition of Prof. Pasteur strictly original as expressed in regard to the "anthrax poison;" that from buried animals, the poison would be brought to the surface again by the earth worms. It is stated that the bacterii would adhere to the surface of those worms, and would, in that manner, be brought again upon the surface of the earth, subsequently these being dried and carried off by air currents and thus be generally diffused for another infection. Prof. Pettenkofer claims to have first expressed such ideas respecting the diffusion of cholera, based on a similar supposition. This writer was of the opinion more than fifteen years ago, that deposits from cholera patients, containing the "poison," were absorbed by the ground, from thence again emitted into the air, and there generally diffused, and thus causing new infections. But at the present day this hypothesis is regarded as entirely obsolete even by radical infectionists.

To prove the illusion of Prof. Pasteur's supposition in regard to the revivification and diffusion of the "anthrax poison," as an illustration of infection, attention is invited to the fact that bacterii, bacteridii, sporules, micrococci, etc., etc., are found in myriads in the cesspools drained from dung piles; in ichorous fluids of decomposed animal substance, and in manure. Now, mostly all over the earth's surface, these substances are taken to the fields as fertilizers, particularly in close proximity to most populous cities (here at St. Louis, for instance, by the gardeners), and the

augmented crop, thus harvested in return, is there consumed without extermination of man and beast, as logically the result ought to be in accordance with the views of infection potentialized as suggested by the "Pasteur discoveries." To illustrate further the illusion attending that doctrine, the city of Croyden(?), England, may be cited here, where all dejections, slops, and foul water are conveyed by sewerage to meadows under irrigation, for fertilizing, the crop of hay harvested in consequence thereof is increased many fold, and the live-stock is fed with that hay; and now the butter and milk obtained from the stock and the meat of it is consumed by the inhabitants, yet it is not known that they are subject to more frequent or more intense epidemics than the inhabitants of other English cities. Those abortive bodies, the supposed agents of "infection" as we know are of the lowest form representations in the regressive metamorphosis, and many of them have not even the power to propagate their own species. In "fermentation" they contribute to the augmentation of decomposition. Through warmth and moisture, they energetically absorb oxygen and cause that process to take a more rapid and intensified course. In their reaction, in the process of fermentation, they are analogous to leptothrix cells, and in regressive actions of the human organism, if injected directly into the blood, to urea; they are agents accompanying the fermentative processes, and by means of which they disintegrate. Their recurrence from decay and putrefaction proves, consequently, that they pertain to the *products* of these processes. According to Karsten, "they neither appertain to the animal nor to the vegetable world, their mission being only to contribute to the promotion of putrefaction and disintegration, like all septic bodies. They are only the constant companions of death" (compare Eidam, Mycologie, p. 186), hence they are totally devoid of specific quality.

The view that they are to be recognized as the source of "specific infection" must, therefore, be rejected, from the known facts of their natural history.

They are not the seeds of fructification in the development of special diseases, but they simply constitute material which, in combination with other fermentable substances, undergo septic (regressive) *actions*, analogous to urea in combination with albuminates or plasma.

Adverting now to vaccination, and bearing in mind the identity of vaccine lymph with that of the variola pustule, or that both contain merely the elements of pus (perhaps a higher percentage of urates respectively), the danger must be comprehensible to every one conversant with physiological chemistry, to which a person is exposed, particularly in early childhood, by being inoculated (*i. e.*, vaccinated) with such material of decay; and the vanity of the "protective power" of "vaccine" matter over the fancied "poison of the specific infection" of small-pox is obvious.

By the masterly and most exhaustive treatise of Keber* on vaccine lymph, and by the thorough investigations microscopically, chemically and spectroscopically, of variolous blood, variola and vaccine lymph, by Coze et Feltz (L. C. p. 179), the identity of vaccine and variola lymph is fully established; also by the inquiry of the author, submitted in his treatise on variola (published in 1878), in which the results of extensive and careful personal examinations of variolous lymph are narrated and the facts indicated of its identity with vaccine lymph. Both contain the elements of common pus, and the origin of which is identical with that of the latter, according to the observations of Cohnheim (Entzuendung, pp. 66 and 67, Embol. Proc., p. 102).

Now these substances of disintegration,

*Ueber die mikroscopishen Bestandtheile der Pocken Lymphe, Virchow's Archiv, Vol. XLII, p. 112, etc.

if applied in a diluted form (attenuation), namely, by vaccination, it is asserted, in favor of vaccination, will "protect" against an influence of which the "specific" nature and mode of action is, in harmony with the specific infection theory, also a supposition, and if the hypothetical "specific" *materies morbi* of small-pox would thereby not be counteracted, a modifying effect would, at any rate, be the result. Pursuant to these suppositions, it is therefore suggested that two like processes can not transpire simultaneously in our systems.

It is surprising, as this doctrine is quite identical with the nosological views of Hahnemann and the actions of his therapeutics, that it could be (and is yet) endorsed by the "regular" profession. Moreover, as it is thereby admitted that homogenious substances (humanized vaccine and variola lymph or pus) exercise a specific protection for a number of years* (*similia similibus*).

But, remembering that the etiology of small-pox rests primarily in the prevalence of physical influences, which cause a uræmic patho-chemical reaction in our organism, and that urea reacts on the blood analogous to septic matter—in case of its absence, or if not exceeding the normal proportion—the general effects of vaccination, either from injecting minimum quantities of septic matter into the blood current or introducing it in the usual way under the epidermis by the operation designated vaccination. and thus producing a slight septic poisoning, would not survive the ordinary course of morphological rotation.

Admitting, for the sake of argument, that by such septic poisoning the "susceptibility" to small-pox would be suspended (*i. e.*, for the time being), its reaction on the blood, however, would in a very short period (within three or four weeks) be completely overcome, unless structural changes of other vital organs had followed. Thus the "protection," even if it be admitted, would be but ephemeral. But on the contrary, is the system in such condition that an already uremic reaction may have matured, and its grave effects are ignited by access of septic matter from vaccinnation, either, as frequently is the case, a general and grave variolous eruption follows, or a septic decomposition of the blood, ending in the death of the patient.

Whenever vaccination remains a mere local irritation, which is fortunate to those vaccinated, its effects are cast off again without having affected the constitution. No general impression is made, as no absorption has taken place beyond the local sphere of the gangrenous inflammation. But when constitutional symptoms follow, septic inflammatory fever and deranged functions of the organs of secretion, in consequence of ensuing structural alterations, the danger is imminent that pulmonary tubercular deposits will also take place, from the morbid products which are not cast off by the cuticular local sores and are circulating through the system. They become in part arrested in the pulmonary capillaries, leading there to the formation of thrombi or embolisms, and finally, in consequence of chronic inflammatory irritation, to tubercular nodules.*

These facts are verified directly by experiments in the physiological laboratory, by

*In this connection it is important to be aware that in the human organism (at least) nothing is at rest, "dormant" or "latent," there is a continual progression (constructive metamorphosis, and regression (regressive metamorphosis) in all its elements and tissues. According to Mole schott, man has, on an average, about 24 pounds of blood, and the oxygen which is taken up in four to five days, by means of respiration, would be sufficient to oxidize all carbon and hydrogen of those 24 pounds of blood into carbonic acid and water, hence, the blood, being about one-fifth part of a grown person, if it were consumed (metamorphosed) within five days the entire body ought to be transformed in five times five (25) days. Artificially colored blood corpuscles of the sheep, introduced in large quantities into the circulation of a frog, disappeared on the seventeenth day entirely. Compare Dr. H. Rohlfs, Deutsches Archiv. fuer Geschichte der Medician etc., Band I, Heft 1; pp. 120-121.

*Compare Virchow, Cell Pathol, 4th Edition, pp. 261 and 245. Hueter Klin. Vortraege, No. 49, p. 288. Gerhardt, *ibid*, No. 91. Cless, Impfung und Pocken, pp. 10 and 11.

clinical observation, and by occasional deaths from vaccination.*

The maximum of tubercular mortality is found recorded for all localities where vaccination is performed in the extreme, and the minimum where vaccination is also observed in a minimum degree, or is omitted.†

To facilitate a comparison on these pre-eminently important facts, the following list of localities, representing in the first column those of the maximum, and in the second those of the minimum, is here reproduced:

‡Vienna,	Algiers,
Berlin,	Braunschweig, (city)
Geneva,	France, (in cities)
London,	Genoa,
New York,	Naples,
Philadelphia,	Rome,
St, Louis,	Turin,
New Orleans,	Venice,
Richmond, Va.,	St. Helena,
Baltimore,	Ireland.
Cincinnati.	

Since the nature of variola and the etiology of this dire malady is no longer a mystery, the causes demonstrable upon which an epidemic occurrence is dependent, and the modus operandi determining the vesicular eruption is understood, the phantom "infection" has lost its significance; also the presumed value of the hitherto employed prophylactic, vaccination. And, if statistics had been computed correctly, vaccination, at the present day, would be doomed to oblivion. Reliable statistics, long ago, have proved it to be utterly futile, which, naturally, could not be otherwise.

But as vaccination is a convenient measure for tyrannical police regulation, and simultaneously offers many opportunities for pecuniary aims (in England $1,500,000 are annually expended for it), a clamorous adherence for its maintenance is manifested by those who are interested, and utterances: "We have reduced even small-pox to human control"* are purposely ventured and circulated. Faulty statistics are therefore submitted by the "authorities."

However, vaccination had to be acknowledged as without scientific basis, and its practice to be simply an empiricism, by the most faithful believers in it. It is therefore evident, as there are only *statistical* data to be appealed to in its behalf, and which prove to be inadmissible as evidence, as they record mere convenient incidentalities, the claimed "protective power" of vaccination against small-pox is fictitious—nay, it is a vanity! Is it not, then, humiliating, that after the proclamation: "even small-pox is brought under human control" by vaccination and revaccination, to see devastating epidemics of small-pox returning, befalling the vaccinated, revaccinated, and those who in addition had survived one or more attacks of variola? Thus proving such assertions gratuitous gossip.

In the agony of the contradicting evidence which exhibits more than a two-third plurality of the "protected" to take small-pox

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* Statistical data of the injuries from vaccination have mostly, everywhere, been excluded from the records; but since the agitation against vaccination has become universal, at Berlin the facts could no longer be suppressed, that vaccination is followed by injurious results. Professor Finkelnburg, member of the German "Reichs Gesundheitsamt" (National Board of Health), had to acknowledge, lately, as stated by Dr. H. Rohlfs, l. c., p. 127, *that twenty-five officially confirmed cases were brought to notice.* On this continent, in San Francisco, Cal.; quite recently, a boy, age thirteen years, died from the effects of vacination. The points of vaccination had become a large sloughing sore, from which absorbtion of putrid matter had taken place. The patient was greatly emaciated, and died with symptoms of convulsion complicated with trismus. The lymph employed was obtained from the San Francisco Health Department.—*Amerika*, St. Louis, Mo., Dec. 15, '80.

† Extreme heights; such as 15,000 feet altitude in the Andes, where pulmonary tuberculosis is said not to prevail (Muehry, Lombard), are here not considered.

‡ In the year 1877, at Vienna, four hundred more died of pulmonary tuberculosis than in the year previous, an increase of eight per cent. (*Vide* "Jahresbericht;" etc, 1877, pp. 176–77).

* Compare Plumbers and Sanitary Engineer, N. Y., March 1. 1880, page 127. Further, Becker, Handbuch der Vaccinationslehre, p. 113, where is enigmatically stated: "Der Mensch hatte das Pockencontagium sich dienstbar gemacht, es gewissermassen gezaehmt."

and frequently ending with grave mortality, some source of "importation" is sophistically then traced up, but from which "infection" is said to be spreading, owing, as the excuse is added, to having been taken by surprise. At first one or more "unprotected" are said to be affected, but subsequently (wonderful philosophy!) others are found "infected" that have been vaccinated and revaccinated frequently and "successfully" so as to be entirely "protected." Relief is then sought in asserting, and with an air of indifference, that small-pox was imported to Berlin, Prussia, in 1871, by the French prisoners of war,* the official "sworn enemies,"† and being thereby disseminated. At Vienna, in 1872, it was suggested, in a similar mood, that the wave of small-pox infection came from Prussia *via* Bohemia.‡

But here, it must be asked, how and by whom was London, in England, "infected," and how Philadelphia and other cities of the United States, in 1871, as there was no "sworn enemy" to these nations, and vaccination with all its variations had equally or decidedly failed in its claimed "protection." Were they also taken by surprise?

Small-pox epidemics come and go. Their reaction of intensity and periods of intermission prove, for the past centuries, to have been of no less nor greater dimensions than during recent periods (*i. e.*, since the introduction of vaccination). Hundreds of years ago, to be sure, when vaccination was unknown, the records of Iceland show that several decades have elapsed in succession, and the island was free from small-pox; so also, immediately prior and subsequent to the introduction of vaccination. The facts here mentioned may be more fully expressed by the details of the following tables:

SMALL-POX EPIDEMICS IN ICELAMD.*

1347	great epidemic.
1380	do do
1430	8,000 deaths.
1511	great epidemic.
1555	do do
1574	do do
1580	a sort of varioloid.
1590	small-pox epidemic.
1616–'17	do do
1632	do do
1636	do do
1655	do do
1658	do do
1670–'71	varioloid and small-pox.
1707–'08–'09	terrible epidemic, mortality 18,000.
1742	light epidemic.
1762–'63	do do
1785	do do
1786	epidemic, 1,237 deaths.
1787	do I13 do
1839–'40	epidemic from importation.

By the statistical data of England, the evidence is produced that vaccination is also devoid of the *mitigating* effects over small-pox, the *dernier* claim of the advocates in its favor; nay, they prove that the mortality of small-pox has constantly increased, particularly since the enforcement of the compulsory vaccination act.

MORTALITY FROM SMALL-POX IN ENGLAND.

Period.	Deaths.
1857—1859	14,244
1863—1865	20,059
1870—1872	44,840

It is further of interest to learn the rates of the vaccinated and unvaccinated having taken small-pox in 1870–'72 in Germany (compare Becker, l. c., chart at p. 261). The vaccinated cases ascend from 20 to 400 at the age of 1 to 15 years; at the age of 15 to 25 years there is a decline from 400 to 372; at the age of 25 to 35 years a decline from 372 to 100, and at the age of 35

* Compare statement of Dr. Albert Guttstadt in Zeitschrift des statistischen Bureaus, 1873.

† Der officielle Erbfeind. Compare Carl Vogt, Die Wanderung der Thiere, Westermann's Monatshefte, Band 47; page 49, etc.

‡ Compare Jahresbericht des Wiener Stadtfysikates, 1877, page 62.

* Compare Anti-Vaccination Publications, German edition, Hanover, 1880. It may be remembered that the climate of Iceland is hibernal and extreme. Infantile mortality is so great that not more than one-half of the children attain the age of fourteen years, hence small-pox is frequent and grave.—Letters of Bayard Taylor.

to 60 years a decline from 100 to nothing. Of the unvaccinated, the rates range in the following manner: At the age of 1 to 7 years there is an ascent from 230 to 250; at the age of 7 to 25 years a decline from 250 to 210; at the age of 25 to 35 years a decline from 210 to 60, and at the age of 35 to 60 years a decline from 60 to nothing.

Thus the facts are corroborated through the data submitted even by a most enthusiastic advocate of vaccination, that the maximum rate of small-pox cases occur among those that have been vaccinated,

At Paris, France, in 1870, vaccination was resorted to as perhaps never before, and in the great majority of instances the lymph was taken directly from the heifer, and yet one of the most destructive epidemics raged there during the winter of 1870–'71. In the four months, October, November, December and January, 6,423 persons died there of small-pox, and in the fifteen months from the 1st of January of 1870 to the 31st of March 1871, a total of 13,035.

In the city of Berlin, Prussia, during the year 1871, occurred 17,020 cases of small-pox, of which 14,287 were vaccinated and 2,733 were not vaccinated. The mortality of small-pox numbered 3,536 (according to Virchow, Sterblichkeit Berlin's, 5,215) of which 2,410 were vaccinated and 1,126 unvaccinated cases.

An epidemic of small-pox devastating the population of Philadelphia in 1871–'72, numbered 15,629 cases, with 3,899 deaths. The statistics of "successful" vaccination report for the same period the number of 48,724, of which 30,526 pertain to the year 1871.

However, the statistics of Berlin and Philadelphia state the mortality among those not vaccinated to exceed that of those vaccinated by far. At Berlin, of the unvaccinated, the percentage of mortality was 41.2, and of the vaccinated 16.8. At Philadelphia, of the unvaccinated, 60.42, and of the vaccinated 28.78. But other facts apply alike to both localities. Those most comfortably situated, and embracing the more intellectual class of the population, suffered the least as to gravity, number of cases and mortality, but among whom vaccination is not omitted, alone from fear. Hence it is indisputable that the minimum of mortality rates with the better educated and wealthier class which represents the vaccinated cases. The maximum rates with the uninformed and proletary, or the class of the unvaccinated.

The validity of these statistics in proof of the mitigating effect of vaccination over small-pox mortality must even be rejected, as its basis is proved faulty.

In London, 7,876 deaths from small-pox occurred in the year 1871, notwithstanding the compulsory vaccination law is in force in England since 1854, and is executed with an unparalleled cruelty and tyranny.* There an individual is punished for one and the same offense (omitting vaccination) to an unlimited extent, until the provisions of the law are complied with. In England there is no possibility of escaping vaccination, and, in addition, the multitude is there grossly terrified about the danger of taking small-pox by neglect of vaccination and frequent revaccination. Officially, it is unhesitatingly asserted, that those vaccinated are "protected."†

But as England, in 1871, and the United States, had no "official sworn enemy" to whom the "importation of the poison of infection" could be attributed, yet, in both countries (London and Philadelphia as representative cities), in defiance of the "protection" of vaccination, small-pox

* Mr. William Tebb, of London, prosecuted twelve times for refusing to have his children vaccinated, stated before the American Anti-Vaccination League, that in England 80 per cent. of small-pox mortality was from vaccinated cases.—*Vaccination Inquirer*, Nov. 1879, p. 119.

† See Bauke's Vaccination Acts, p. ix. It may here be proper to remind pretension of the words of Prof. Preyer, when he says: "Das nie irgend Einer und sei er der Edelste und Groesste, ungestraft die Wissenschaft irgendwo durch einen Machtspruch zuverbarricadiren versucht hat."—Ursache des Schlafes, p. 27.

originated and prevailed with an unsurpassed degree of intensity.

At Vienna, Austria, in 1877, an epidemic of small-pox prevailed, numbering in the ten districts of that city, 1,749 cases and 564 deaths, as we have already seen, but as there was. on this occasion, no opportunity to charge this occurrence to an "importation," in subserviance to the *alma mater*, it is stated, that it was one of the subsequent epidemics of which the "germs of infection" had remained over in several of the districts from 1872,* and again vaccination and revaccination had been urged, as also performed, most assiduously. But no better illustration could be adduced in proof of the signal failure of the "protective power" of vaccination against small-pox, than the reproduction of the statistical data contained in the annual report of the "Stadtfysikat" of Vienna for 1877, p. 45. There it is stated that 14,195 primary vaccinations had been performed, and 1,022 revaccinations. The number of primary vaccinations exceeded that of the year previous (1875) by 4,368.

Now in special reference to the *fifth district*, which is classified as the least cared for, but it is reported that 1,457 primary vaccinations were there performed, against 784 the year previous, inducing to the self-congratulation: "the spreading of small-pox was thus most energetically counteracted,"† and then comparing the lists of small-pox morbidity and mortality, the surprising—nay, alarming—facts are discovered that this district suffered second highest as to the number of cases, and unparalleled in the rate of mortality—96.2 per cent.

These records of Vienna also corroborate the great truths that small-pox morbidity and mortality can not be affected by vaccination, but that they are on a parallel—even proportionately—with poverty and ignorance, in comparison to where comfort of life and a higher rate of intelligence are enjoyed. These facts precisely correspond with those already indicated above, of Philadelphia and Berlin, and demonstrate the fallacy of indiscriminate statistical data which are based only on the performance or omission of vaccination. The observance of vaccination and revaccination is a matter of incidentality, as the wealthier and better educated class does not omit it mainly from fear, as we know, and the class of the proletory and uneducated neglect it from want of means and from indifference. But the following table affords the proof that vaccination is devoid even of a shadow of prophylactic influence against small-pox, and by the data of the fifth district, where the "protective influence" of vaccination was with the greatest assiduity "brought to those in need of protection," the fact of the most untoward results is demonstrated.

Morbidity and mortality of small-pox at Vienna in 1877 of all the districts:

	Morbidity.	Mortality.
First District..........	59	4
Second District........	290	56
Third District..........	356	70
Fourth District........	163	35
Fifth District..........	292	281
Sixth District..........	160	41
Seventh District.......	191	32
Eighth District........	79	13
Ninth District.........	71	14
Tenth District.........	88	18
Totals..............	1,749	564

Now, in conclusion, in view of the patho-chemical action of variola, and the danger and utter futility of vaccination, above abundantly set forth, must not, then, its claimed "protection" against small-pox be regarded as a vanity, and its continued practice a crime?

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* Jahresbericht ect. 1877, page 62. These misrepresentations find their analogy in the explanation of the reoccurrence of yellow feyer at Memphis; in 1879, by the national health authorities. By them it was also asserted that the "germs of infection" had remained over from the epidemic of the year previous. Also bv the report of the "Scientific Commission" (Deputation). appointed for the purpose, to state that "vaccination protected and never injured," to afford a basis for passing the compulsory vaccination law of the German Empire.

† The importance of the subject will justify the reproduction of the whole sentence in the original tongue: "Es ist aber durch diesen Aufschwung in der oeffentlichen Impfung gerade in den von den aermsten Bewohnern die Wahlthat des Blatterschutzes von den Sanitaetsorganen sozusagen entgegengebracht und dadurch der Blatternverbreitung in den verwahrlosesten und am dichtesten bewohnten Staetten energisch entgegengearbeited worden." P. 48. Also compare pp. 45, 114, 116.

7 5

2464.35
397.60

2066.75
2861.95

3442.32
375.96
3066.36

{ 261.7
{ 240

4.75
174.
2861.95
15.
3.50
42.95
3130.72
58
3072.72
66.6
6.36